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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,089	10/17/2000	ATSUSHI USHIRODA	862.C2031	3597
5514	7590	05/17/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			LEE, TOMMY D	
			ART UNIT	PAPER NUMBER
			2624	

DATE MAILED: 05/17/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/690,089

Applicant(s)

USHIRODA, ATSUSHI

Examiner

Thomas D. Lee

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8,9,12,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,7,10,11 and 13-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the line-by-line average pixel density" in lines 3 and

4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,832,122 (Shimazaki).

Regarding claim 1, Shimazaki discloses an image processing apparatus for supplying an image forming apparatus with image data that has been performed halftoning process by using a threshold mask which is corrected based on an output characteristic of the image forming apparatus, comprising: output characteristic detection means for detecting the output characteristic from results output by the image forming apparatus (test patterns produced by output device, measured for density by densitometer (column 8, lines 61-66)); mask generating means for generating the threshold mask based upon the output characteristic detected (desired threshold matrices generated based on measurements from densitometer (column 8, lines 66-column 9, line 41)); supplying means for subjecting image data output to the image forming apparatus to the halftoning processing using the generated threshold mask, and supplying the image forming apparatus with the image data after the halftoning processing thereof (desired generated threshold matrix selected, binary image generated using selected matrix (column 9, line 64-column 10, line 7)); and wherein the mask generating means generates the threshold mask by using potential weighted by the output characteristic detected by the output characteristic detection means (elements of weighting filter multiplied with output characteristic for generation of threshold matrices (column 9, lines 53-63)).

Regarding claim 8, Shimazaki discloses an image forming system comprising the image processing apparatus set forth in claim 1 (note above), and an image forming apparatus (binary image formed by output device (column 10, lines 3-7)).

Regarding claim 9, Shimazaki discloses an image processing method for supplying an image forming apparatus with image data that has been performed halftoning process by using a threshold mask which is corrected based on an output characteristic of the image forming apparatus, comprising: an output characteristic detection step for detecting the output characteristic from results output by the image forming apparatus (test patterns produced by output device, measured for density by densitometer (column 8, lines 61-66)); a mask generating step for generating the threshold mask, which is used in the halftoning process, by correcting a threshold mask based upon the output characteristic detected (desired threshold matrices generated based on measurements from densitometer (column 8, lines 66-column 9, line 41)); a supplying step for subjecting image data output to the image forming apparatus to the halftoning processing using the generated threshold mask, and supplying the image forming apparatus with the image data after the halftoning process thereof (desired generated threshold matrix selected, binary image generated using selected matrix (column 9, line 64-column 10, line 7)); and wherein the mask generating step generating the threshold mask by using potential weighted by the output characteristic detected by the output characteristic detection step (elements of weighting filter multiplied with output characteristic for generation of threshold matrices (column 9, lines 53-63)).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4, 12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki.

Regarding claims 4 and 12, Shimazaki discloses an image reading means for reading results output by the image forming apparatus (densitometer 26). Shimazaki does not disclose density detection means for detecting line-by-line average pixel density from results output by said image reading means. However, one of ordinary skill in the art would have recognized that a means for detecting line-by-line density is well known in the art and is generally used for determining thresholds for differentiating between foreground objects and background, among other processing purposes (It should be noted that applicant's density detection means, as recited in the claims, is not necessarily tied in with the mask generation recited in the base claims). It would have been obvious for one of ordinary skill in the art to modify the teaching of Shimazaki by providing density detection means such as known in the art, so that proper thresholds may be set for providing a visually pleasing output image.

Regarding claim 16, Shimazaki discloses the image processing apparatus as set forth in claim 1 (note above rejection of claim 1). Regarding claim 17, Shimazaki discloses the image forming method as set forth in claim 9 (note above rejection of

Art Unit: 2624

claim 9). Shimazaki does not disclose a storage medium storing a program capable of being executed by a computer. However, it is well known to one of ordinary skill in the art that image processing steps, in general, may be written as computer codes and stored on a disk or other storage medium, so that the image processing steps may be performed by a computer, and one of ordinary skill would have been motivated to provide image processing steps as computer codes so that the image processing may be performed without the need for specific image processing hardware.

***Allowable Subject Matter***

9. Claims 2, 3, 6, 7, 10, 11 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest an output characteristic being an average density variation from one plurality of print elements to the next, as recited in claims 2 and 10; or an amount of printing position deviation from one plurality of print elements to the next, as recited in claims 3 and 11; or generation of a mask using potential that has been weighted by line-by-line average pixel density, as recited in claims 5 and 13; or barycenter detection means or step for detecting a barycenter of a line which an average pixel density from density detection means or step exceeds a

Art Unit: 2624

predetermined value, as recited in claims 6 and 14; in combination with the mask generating means of claim 1 or corresponding step of claim 9.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,854,882 (Wang) and U.S. Patent 6,515,770 (Rao et al.) disclose methods of generating dither masks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2624

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas D. Lee  
Primary Examiner  
Art Unit 2624

tdl  
May 14, 2004